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<p>92-410421/50      A25      DAIL 91.04.04          DAICEL CHEM IND LTD      *JP 04306228-A          91.04.04 91JP-071882 (92.10.29) C08G 65/20          Prepn. of poly:oxy:tetra:methylene:glycol efficiently - by          polymerising tetra:hydro:furan in presence of solid catalysts of          composite metal oxide and carboxylic acid anhydride, used for e.g.          engineering plastic          C92-182149</p>	<p>A(2-A6, 2-A7, 5-H5, 10-D3)</p> <p>(ester)amides, surfactant:s, or engineering plastics or for          medical uses.</p> <p><b>CATALYSTS</b>          The catalysts pref. comprise metal oxides such as  <math>Al_2O_3</math>, <math>SiO_2</math>, <math>TiO_2</math>, <math>ZrO_2</math>, <math>WO_3</math>, or <math>ZnO_2</math>. Pref. catalysts          include <math>Al_2O_3-SiO_2</math>, <math>SiO_2-TiO_2</math>, <math>SiO_2-ZrO_2</math> and <math>TiO_2-ZrO_2</math>.          The catalyst is prepd. as follows; (1) metal conig.          -cpds. e.g. metal alkoxides, metal chlorides, metal          oxychlorides are added to ammonia to ppte. composite          metal oxides, and (2) the pptes. are crushed to particles          (200-500 mesh pass) and calcined at 300-600°C.</p> <p><b>EXAMPLE</b>          Silica-alumina solid catalyst (alumina content = 70%)          obtd. by calcining at 500°C for 4 hrs. in an air atmos.          is packed in a piston-flow type reactor (dia. = 30mm;          length = 200mm).          20ml/hr. of THF contg. 3.8 wt. % of acetic anhydride          is fed at 40°C and polymsn. is carried out for 132 hrs.          continuously to give 404.3g of polyoxytetramethylene-          glycol diacetate (<math>M_n = 1,020</math>).</p> <p style="text-align: right;">JO4306228-A+</p>
<p>Prepn. of polyoxytetramethyleneglycol comprises poly-          merising tetrahydrofuran in presence of both:          (a) solid catalysts composed of composite metal oxides          of the formula (1), and          (b) carboxylic acid anhydrides.</p> <p style="text-align: center;"><math>M_xO_y</math>      (1)</p> <p>M = metal; and          x and y = 1,2 or 3.</p> <p><b>ADVANTAGES/USES</b>          The solid catalyst is easily recovered from the          reaction mixt. and reactivated. The polyoxytetramethyl-          eneglycol (POTG) is obtd. easily and is used as a raw          material for polyurethanes, polyetheresters, polyether-</p>	

<p>The catalyst is removed from the reactor and washed          with THF. After drying, the catalyst is charged to a          tube (dia. = 30mm, length = 400mm) and calcined at 500°C          for 7 hrs. under air.</p> <p>THF is polymerised by the same way in presence of          the reactivated catalyst to give 406.2g of polyoxytetra-          methyleneglycol diacetate (<math>M_n = 1,060</math>).          (5ppW156DwgNo0/0).</p>	<p style="text-align: right;">JO4306228-A</p>
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